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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
09/133,741	08/13/98	BALDWIN D	TD-143

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LM02/0621

EXAMINER	
NGUYEN, T	
ART UNIT	PAPER NUMBER
2779	8

DATE MAILED: 06/21/00

Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner of Patents and Trademarks

Office Action Summary	Application No. 09/133,741	Applicant(s) Baldwin
	Examiner Thu Nguyen	Group Art Unit 2779

☐ Responsive to communication(s) filed on _____ .

☐ This action is **FINAL**.

☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

A shortened statutory period for response to this action is set to expire *three* month(s), or thirty days, whichever is longer, from the mailing date of this communication. Failure to respond within the period for response will cause the application to become abandoned. (35 U.S.C. § 133). Extensions of time may be obtained under the provisions of 37 CFR 1.136(a).

Disposition of Claims

☒ Claim(s) *1-46* is/are pending in the application.

Of the above, claim(s) _____ is/are withdrawn from consideration.

☐ Claim(s) _____ is/are allowed.

☒ Claim(s) *1-46* is/are rejected.

☐ Claim(s) _____ is/are objected to.

☐ Claims _____ are subject to restriction or election requirement.

Application Papers

☐ See the attached Notice of Draftsperson's Patent Drawing Review, PTO-948.

☐ The drawing(s) filed on _____ is/are objected to by the Examiner.

☐ The proposed drawing correction, filed on _____ is ☐approved ☐disapproved.

☐ The specification is objected to by the Examiner.

☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. § 119

☐ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d).

☐ All ☐ Some* ☐ None of the CERTIFIED copies of the priority documents have been

☐ received.

☐ received in Application No. (Series Code/Serial Number) _____ .

☐ received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

*Certified copies not received: _____ .

☒ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

Attachment(s) ✓

☒ Notice of References Cited, PTO-892

☒ Information Disclosure Statement(s), PTO-1449, Paper No(s). *4* /

☐ Interview Summary, PTO-413

☐ Notice of Draftsperson's Patent Drawing Review, PTO-948

☐ Notice of Informal Patent Application, PTO-152

--- SEE OFFICE ACTION ON THE FOLLOWING PAGES ---

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. Claims 1-46 are rejected under 35 U.S.C. 103(a) as being unpatentable over Rossin et al (U.S Patent No. 5,877,773) in view of Watkins et al (U.S Patent No. 5,361,386) and further in view of Narayanaswami (U.S Patent No. 5,613,052).

As per claim 1, 6, Rossin et al teaches a method for clipping graphics primitives. The method comprises the steps of: using a clipping algorithm with a circular buffer to store input and output polygons of the primitive (fig.5A; col.9, lines 60-67 and col.10, lines 1-27; and col.4, lines 17-32).

Rossin et al does not teach defining all vertices of a primitive using relational coordinates. However, Watkins et al teaches defining all vertices of a primitive using relational coordinates as claimed (col.9, lines 66-68 and col.10; and col.11). It would have been obvious to a person of ordinary skill in the art at the time the invention was made to define the vertices of a primitive in barycentric coordinate as taught by Watkins et al in the clipping method of Rossin et al. The motivation for this would have been to facilitate interpolation to determine the color and light of

the intercepted points of the clipping planes and the polygon and to easily determine if a point on the clipping plane in inside or outside the polygon as taught by Watkins et al in abstract and col.9, lines 4-17.

Rossin et al does not explicitly teach indicating visibility with respect to each plane of a view volume for each vertex. However, Narayanaswami teaches indicating whether each vertex is visible with respect to each plane of a view volume (col.5, lines 44-63). It would have been obvious to a person of ordinary skill in the art at the time the invention was made to indicate visibility for each vertex of the polygon of Rossin et al. The motivation for that would have been to perform clipping and lighting calculation according to the visibility indication of the vertex as taught by Narayanaswami in col.8, lines 31-36.

As per claim 2, rasterizing only vertices which are visible in all planes would have been well known to a person of ordinary skill in the art at the time the invention was made.

As per claim 3, Narayanaswami teaches performing clipping prior to lighting or texture calculation (col.1, lines 53-67).

As per claim 4-5, Rossin et al teaches polygon and triangle primitive (col.1, lines 24-33).

As per claim 7, using frustum view volume as clipping planes would have been well known to a person of ordinary skill in the art at the time the invention was made. It would have been an obvious choice to a person of ordinary skill in the art at the time the invention was made to use the well known frustrum volume instead of the clipping planes of Rossin et al.

As per claim 8-10, Rossin et al teaches there are six or more planes in view volume (col.3, lines 31-36).

As per claim 11, Rossin et al teaches Sutherland and Hodgman clipping algorithm (col.19, lines 53-58).

As per claim 12-13, Narayanaswami teaches indicating vertex visibility by a bit flag (col.5, lines 44-67; and col.6, lines 1-14). Narayanaswami does not teach 12 bit visibility flag. However, Narayanaswami teaches selecting the number of the visibility bit flag according to the number of non-overlapping region (col.5, lines 44-52). It would have been obvious to a person of ordinary skill in the art at the time the invention was made to select the twelve bit flag when the twelve clipping planes of Rossin et al is used.

As per claim 14, Rossin et al does not teach using two circular buffers to store input and output polygons. However, Rossin et al teaches using circular buffer (fig.5A; col.9, lines 60-67

and col.10, lines 1-27; and col.4, lines 17-32). It would have been obvious to a person of ordinary skill in the art at the time the invention was made to integrate duplicate circular buffer of Rossin et al, because integrating duplicated circular buffer together involves only routine skill in the art (St. Regis Paper Co. v.bennis Co., 193 USPQ 8).

As per claim 15, Rossin et al teaches a circular buffer with maximum storage of sixteen vertices (col.5, lines 44-48).

As per claim 16-27, 28-37, and 38-46, refer to discussion in claims 1-8, 11-12, 14-15 above. Further, as to claim 38, the claimed display, processor, and video rendering hardware would have been very well known to a person of ordinary skill in the art.

Any response to this action should be mailed to:

Commissioner of Patents and Trademarks

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or faxed to:

(703) 308-9051, (for formal communications intended for entry)

Or:

(703) 308-6606 (for informal or draft communications, please label "PROPOSED" or "DRAFT")

Hand-delivered responses should be brought to Crystal Park II, 2121 Crystal Drive, Arlington. VA., Sixth Floor (Receptionist).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Thu Nguyen whose telephone number is (703) 306-9130. The examiner can normally be reached on Monday-Thursday from 8:00 am to 5:00 pm ET.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mark Powell, can be reached on (703) 305-9703. The fax phone number for this Group is (703)308-6606 .

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Group receptionist whose telephone number is (703)305-3900.

NTV

June 7, 2000

Mark R. Powell

MARK R. POWELL
SUPERVISORY PATENT EXAMINER
GROUP 2700